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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/581,004	07/17/2000	SHUSAKU OKAMOTO	MTS-3200US	2255

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EXAMINER	
VO, TUNG T	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

9/3

Office Action Summary	Application No.	Applicant(s)	
	09/581,004	OKAMOTO ET AL.	
	Examiner	Art Unit	
	Tung T. Vo	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US 5,796,991) in view of Kitamura et al. (US 5,757,287).

Re claims 1, 37 and 40-42, Shimizu discloses a vehicle-operation assist comprising: circumferential-state imaging means (201L and 201R of fig. 7) for imaging a circumferential state of a vehicle with a camera and generating a circumferential-state image; synthetic-image generating means (211- 213, and 241-245 of fig. 1) for generating a synthetic image by superimposing with respect to the circumferential-state image, an assumed-movement pattern (241 and 242 of fig. 7) which is the video data showing movement of the vehicle in performing a predetermined series of driving operations for the vehicle; and displaying means for displaying the synthetic image (102 of fig. 7).

It is noted that Shimizu does not suggest generating a synthetic image of the vehicle where the assumed movement pattern of the vehicle is a future movement, an optimized movement, of the vehicle from a current position of the vehicle, start and end positions of the vehicle.

However, Kitamura discloses generating a synthetic image of the vehicle where the assumed movement pattern of the vehicle is a future movement, an optimized movement, of the vehicle from a current position of the vehicle, start and end positions of the vehicle (fig. 8, e.g. searching area to predict position, predicted position from (X0, Y0) to (Xs, Ys) as start and end positions; fig. 9 and col. 9, lines 20-65 describes the past movement used for prediction the future).

Therefore taking the teachings of Shimizu and Kitamura as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings of Kitamura into the system of Shimizu for the same purpose of predicting the future movement of the vehicle. Doing so would allow the system to reduce the processing time as suggested by Kitamura (col. 9, lines 65-66).

Re claim 2, Shimizu further teaches the circumferential -state imaging means (201L and 201 R of fig. 7) has one camera or more and a camera parameter table (111 of fig. 7) for storing a camera parameter which is a characteristic of the camera or each of the cameras and generates the circumferential-state image on the basis of the camera parameter from an output of the camera or each of the cameras (242, 243, 244, 245 and 213 of fig. 7).

Re claim 3, Shimizu further teaches the vehicle-operation assist further comprises wherein the circumferential-state imaging means has space reconfiguring means (245 of fig. 7, e.g. computer graphic is a space reconfiguring means) for generating space data obtained by relating each pixel constituting an image output from the camera or each of the cameras to a point in a three-dimensional space (Left and Right images are synthesized to form a 3D space using the camera parameters) on the basis of the camera parameter, and viewpoint converting

means (211 of fig. 7,e.g. image processing) for generating an image viewed from a predetermined viewpoint as said circumferential-state image by referring to the space data and the synthetic-image generating means (213 of fig. 7) generates the synthetic image by referring to the space data (245 of fig. 7).

Re claim 4, Shimizu further teaches the vehicle-operation assist characterized in that a space-data buffer (244 of fig. 7) for temporarily storing the space data is included.

Re claim 5, Shimizu further teaches the vehicle-operation assist characterized in that the predetermined viewpoint is a point fixed (col. 12, lines 45-59) to the three-dimensional space or the vehicle, and the viewpoint converting means changes the predetermined viewpoint automatically or through an input from a driver (230, 241 of fig. 7).

Re claims 6-36, 38-39, Shimizu further teaches the vehicle-operation assist characterized in that the assumed-movement pattern (243 of fig. 7) includes video data showing the relation between and assumed-movement start area which is an area in which the vehicle at start of the movement of the vehicle when performing the above predetermined series of driving operations is present and an assumed-movement end area which is an area in which the vehicle at end of the movement is present (111, 241, 245, and 243 of fig. 7). Shimizu further teaches the vehicle-operation assist characterized in that the assumed-movement pattern includes video data showing tire traces of the vehicle and/or video data showing a movement area of the vehicle (111 of fig. 7). Shimizu further teaches the vehicle-operation assist characterized in that the assumed-movement pattern includes video data showing virtual poles arranged on the outer edge of the vehicle movement area (figs. 10A-10E). Shimizu further teaches the vehicle-operation assist characterized in that the synthetic-image generating means (213 of fig. 7) superimposes

current-position data serving as video data showing an area in which the vehicle is present, on the circumferential-state image to generate the synthetic image (figs. 10B-10C). Shimizu further discloses the vehicle-operation assist characterized in that the synthetic-image generating means superimposes the assumed movement start area on a position same as the current-position data (241, 111, and 242 of fig. 7). Shimizu further teaches the vehicle-operation assist characterized in that movement-position computing means (241 of fig. 7) is included which computes movement positions of the vehicle since the actual driving operations were started (232 of fig. 7), in accordance with signals relating to the actual driving operations, and the synthetic-image generating means fixes the positional relation in accordance with the movement positions (242 and 213 of fig. 7) and characterized in that positional-information storing means (243, 244 of fig. 7) is included which stores positional information of the whole or a part of the video data for the assumed-movement pattern with regard to the basis of the whole or a part of the video data for the circumferential-state image on the synthetic image when the actual driving operations are started, the synthetic-image generating means fixes the positional relation in accordance with the positional information.

Moreover, Shimizu further teaches the vehicle-operation assist characterized in that final-position inputting means (233 of fig. 7) for inputting a final position which is a position of the vehicle at end of the movement and start-position determining means (232 of fig. 7) for obtaining a start position which is a position at start of the movement corresponding to the input final position in accordance with the assumed-movement pattern are included, and the synthetic-image generating means (213 of fig. 7) superimposes the input final position and the start position corresponding to the input final position on the circumferential-state image to

generate the synthetic image (col. 13); start-position guiding means (243 of fig. 7) is included which guides the vehicle to the start position by automatically controlling driving of the vehicle; assumed-movement-pattern storing means (244 of fig. 7) is included which holds data relating to the above predetermined series of driving operations and holds assumed-movement data including at least the assumed-movement pattern; assumed-movement-pattern storing means (244 of fig. 7, 243 of fig. 7) holds a plurality of assumed movement patterns, and pattern selecting means is included which automatically selects the assumed-movement pattern through an input from a driver or a predetermined driving operation; and pattern correcting means (242 of fig. 7) is included which is able to update and correct the content of the assumed-movement pattern held in the assumed-movement-pattern storing means.

Shimizu further teaches the vehicle-operation characterized in that the pattern correcting means (242 of fig. 7) updates and corrects the assumed-movement pattern and/or the assumed-movement data in accordance with the vehicle positions at start and end of the corrected movement input from a driver (230 and 111 of fig. 7); the pattern correcting means updates and corrects the assumed-movement pattern and/or the assumed-movement data in accordance with an actual driving operation (111 and 242 of fig. 7); the assumed-movement data includes time-series data showing a relationship between a movement distance and a steering angle of the steering wheel of the vehicle (231 and 241 of fig. 7, col. 12, lines 45-60); driving control means (231 of fig. 7) is included which automatically controls driving of the vehicle in accordance with the time-series data when actual driving operations corresponding to the above predetermined series of driving operations are started; and operation-start detecting means (235 of fig. 7) is included which automatically detects that actual driving operations corresponding to

the above predetermined series of driving operations are started through an input from a driver or a predetermined driving operation.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris. Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TUNG T VO
PATENT EXAMINER

T.Vo.

Tung T. Vo
Primary Examiner
Art Unit 2613